

# LIVING UP TO THE LUBRICATION CHART. Oil By Mileage Not By Guesswork.

There is furnished with every new car a very clear diagram of the various parts, with the intervals at which each should be lubricated and the kind of lubricant required, plainly marked in connection with each of these "oiling diagrams." By means of the most important instructions furnished the owner by the manufacturer, if its directions are faithfully followed, satisfaction will be great and repair bills small and vice versa. It should be posted in the garage where it can always be referred to and any motorist who may have lost his copy should obtain a new one from the factory. The well prepared lubrication chart gives the oiling intervals in miles, for instance, "Fill rear axle housing with oil, one quart each 100 miles," and this is the only reasonable manner to express the lubrication needs of the various parts. Such instructions as "pack with grease once a season" or "turn down this grease cup every three weeks" are almost worthless, for the quantity of grease in a grease cup varies from next to nothing to 15,000 or 20,000 miles and "every three weeks" may include a tour of 1,500 miles or hardly any driving at all. Five or six thousand miles a year being the average work of an average passenger car, it is very easy to translate these "time" directions into "mileage" or the individual owner's own annual mileage can be used as the basis to even better advantage. In order to live up to oiling instructions conferred in terms of distance traveled, the first consideration is, of course, that the mileage register of the speedometer shall always be in working order, and it is equally important that a memorandum of the odometer which each part is lubricated shall be made at the time of its performance, for it is no use to burden the uncertain memory with such details. It is only necessary to mark upon a sheet of heavy paper in vertical column, the names of the parts requiring lubrication, rule horizontal lines from these and tack this form upon the garage wall. Then, whenever a certain oiling job is done, the odometer reading is marked opposite it and a glance at this reading and the lubrication chart will, at any later time, inform one whether or not it is time to perform it again.

## DASHBOARD CONTROL FOR CARBURETOR.



L. S. writes: On the old car, which I am using as a truck, there is no way to adjust the mixture from the seat and it is almost impossible to run it satisfactorily on that account. How best can I overcome this difficulty?

Answer: You can either provide your present carburetor with an adjustment control or install one of the late carburetor models, a great many of which include an adjustment control obtainable from the steering post or the seat. If your old carburetor has an accessible and satisfactory means of adjustment, you can probably arrange to operate this from the seat by fitting it with a Bowden wire which will work around corners and which will be connected with the carburetor linkage, and is very easily connected.

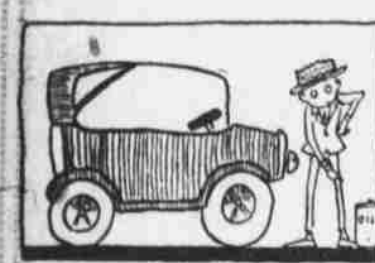
## PROBABLY A CARBURETION DIFFICULTY.



H. A. B. writes: The engine of my 1915, six-cylinder car has taken to misfiring on one cylinder. It has good compression and the carburetor has been cleaned. I am getting only five or six miles on a gallon of gasoline. Can you tell me what the trouble is?

Answer: Your very low gasoline economy suggests that at times, at least, the mixture is excessively rich and rich enough in one cylinder, so that it fails to fire. Possibly the carburetor adjustment has been changed, or the automatic air valve sticks in a closed position. Gasoline quality has deteriorated considerably in the last five years and we fear that you need more heat on the intake manifold than was originally provided for. If the spark is good at the plug of the cylinder which misfires, we feel quite sure that your trouble is one of defective carburetion.

## THIN OIL MAY CAUSE THIS.



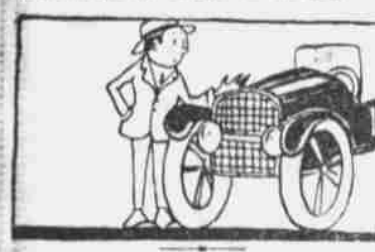
R. M. D. writes: Of late my engine has been running all right while moderately warm, but after it has become thoroughly heated, it seems to lose power, and does not operate so smoothly. Especially when I push it rather hard. Formerly it seemed to run better the hotter it became. How can you explain this?

Answer: It occurs to us as possible that this trouble may be due to the engine oil that is used and used. If the oil has become thinned by fuel admixture, is of poor quality or of too light a grade, it is likely to lubricate inefficiently, while it is still fairly cool, but to become so thin, under intense heat and heavy pressures, as to fail to lubricate and to give rise to excessive engine friction, resulting in loss of useful power and noisy engine operation.

## RADIATOR NEEDS CLEANING OUT.

V. D. writes: When I took my car out of storage this spring and had run the engine for a while to test it, I happened to pass my hand over the radiator and noticed that there was quite a large space on one side, that had not been heated up. Does this indicate anything wrong?

Answer: This is evidence that there is no circulation of water through a portion of the radiator. A portion of the passages having become clogged with sediment and, if this is the case, the cooling capacity of the radiator will be reduced, possibly to such an extent as to cause the engine to overheat.



## CASTOR OIL FOR CYLINDER LUBRICATION.

P. H. asks: If castor oil is superior to ordinary mineral oil, why is it not used in automobiles? Why is it not used to mix a motor oil with the regular oil I use in my engine?

Answer: Most airplane engines use an ordinary mineral oil, but it is adapted to the engine. Castor oil is a very hard-worked lubricant, but it is very sticky and it tends to form a very bad deposit on the cylinder walls and on the piston rings. It is not good for the engine parts and it produces sticky deposits on valves and piston rings. The special lubricating qualities of castor oil are hardly required in motor car engines. There is so much of the time quite lightly loaded. As to using castor with mineral oil, we believe that they do not mix but remain practically as separate liquids. However we have never seen the experiment tried.

## RADIATOR AND TIRE QUESTIONS.

A. G. H. asks: Is there any way of tightening a tubular radiator, which leaks, without tearing it to pieces? Will the stuff that is sold to stop radiator leaks, be likely to stop radiator leaks, the circulation? What is the best material to coat rims with to keep them from rusting? Why is it necessary to use talcum powder on inner tubes?

Answer: Thick white lead, applied to the leak, will harden and stop it temporarily, but it is necessary to solder the crack in the tube to make a permanent repair. To get at the damaged

## PISTON RINGS NOT WORN IN.



somewhat. As this material is not very expensive, our personal feeling is that the best thing to do is to replace it when it has deteriorated too far.

A. C. M. writes: Since I have put new piston rings in my engine, it gives less power than formerly, and when the car is climbing a hill the engine sounds as if one of the cylinders was missing, although I am positive that the ignition is all right. Can it be that this is caused by the rings not yet having become worn in? If so, how long will it take them to wear in? The car has been driven about 10 miles since refitting.

Answer: Yes, the rings of this cylinder probably fit so badly that the compression is very weak and this results in feeble explosions. When you crank this cylinder over compression, you will probably find that the charge leaks by the piston very freely. These rings, if they were put in properly, will tend to fit themselves to the cylinder wall, but it will take a good many miles of wearing in to give you good compression. Unless they were installed properly, they may never wear in, but you better keep on running the car for a few hundred miles and see if there is improvement.

## ENGINE MAY BE STIFF.



R. S. writes: I had my engine overhauled in a garage, and installed a new carburetor and timer, but now, while it runs pretty well on the level, it will pull the car up a hill, on low. What is the matter?

Answer: So many things may be wrong after an overhauling that the utmost we can do is to make a few suggestions as to where the trouble may be. See that the new carburetor is not too tightly fitted, that there is good compression in each cylinder, that the valves and timer are set according to directions, that the spark is properly powerful, that the carburetor gets plenty of gasoline and is adjusted for full power and that the whole car runs freely, with no "drag" at the brakes or elsewhere. Frequently the pistons are fitted so tightly that, when heated, by hard pulling, they bind so tightly in their cylinders that very little useful power is developed by the engine.

## REWINDING OLD CAR.



W. E. D. writes: The spark wiring on my car is very old, and has been giving so much trouble that I am going to replace it. Can you give me any suggestions to help me in doing the job right?

Answer: Use the best insulated oil and wear-proof conductor, especially for the secondary wiring. If steel armored conductor can not be used, include cabling. Use special copper terminals, soldered to the ends of wires, for connection instead of clamping their bare ends under contact nuts. Be sure that all conductors, that can be, are fastened to the ends of clips or cleats, so that they shall not chafe or become loose by moving parts. Run the wires out of the way of engine oil and water and make the circuits as short as possible, consistent with a compact and systematic layout. High-tension cables may well be run through a fiber

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